IN THE CLAIMS:

1. (Currently amended) An isolated nucleic acid molecule ~~corresponding to~~ encoding a polypeptide having diacylglycerol acyltransferase activity, wherein ~~said~~ the isolated nucleic acid molecule ~~includes~~ comprises a sequence encoding a polypeptide of SEQ ID NO: 2 ~~according to SEQ ID NO: 1, a functional part of SEQ ID NO: 1, or a sequence that is substantially homologous to SEQ ID NO: 1~~.

2. (Currently amended) An isolated nucleic acid molecule ~~corresponding to~~ encoding a polypeptide having diacylglycerol acyltransferase activity, wherein ~~said~~ the isolated nucleic acid molecule ~~includes~~ comprises a sequence according to SEQ ID NO: 1, SEQ ID NO: 3, or a ~~functional part of~~ fragment of SEQ ID NO: 1 or SEQ ID NO: 3 having 90% identity with SEQ ID NO: 1 or SEQ ID NO: 3, wherein the fragment encodes the polypeptide having the diacylglycerol acyltransferase activity ~~, or a sequence that is substantially homologous to SEQ ID NO: 3~~.

3. (Currently amended) A vector for transformation of plant cells, wherein said vector ~~contains~~ comprises a nucleic acid sequence ~~corresponding to~~ encoding a polypeptide having diacylglycerol acyltransferase activity, wherein a ~~the~~ sequence ~~contains~~ of the polypeptide comprises SEQ ID NO: 2 ~~1, contains a functional part of SEQ ID NO: 1, or contains a sequence that is substantially homologous to SEQ ID NO: 1~~.

4. (Currently amended) A vector for transformation of plant cells, wherein said vector ~~contains~~ comprises a nucleic acid sequence ~~corresponding to~~ encoding a polypeptide having diacylglycerol acyltransferase activity, wherein the nucleic acid sequence ~~contains~~ comprises SEQ ID NO: 1, SEQ ID NO: 3, ~~contains~~ or a fragment ~~functional part~~ of SEQ ID NO: 1 or SEQ ID NO: 3 having 90% identity with SEQ ID NO: 1 or SEQ ID NO: 3, wherein the fragment encodes the polypeptide having the diacylglycerol acyltransferase activity ~~, or contains a sequence that is substantially homologous to SEQ ID NO: 3~~.

5. (Withdrawn). A vector for transformation of plant cells, wherein said vector contains a nucleic acid sequence according to SEQ ID NO: 23, which is SEQ ID NO: 1 altered to contain an 81 bp insertion, such that the deduced amino acid sequence of the encoded protein contains the repeated sequence SHAGLFNLCVVVLIAVNSRLIIENLMK according to SEQ ID NO: 25, where the spacing and identity of the G at position 4, the N at position 7, the V at position 10, the V at position 11, the L at position 13, the I at position 14, the N at position 17, the R at position 19, the L at position 20, the E at position 23, the N at position 24, the L at position 25 and the K at position 27 are identical or are replaced by conserved substitutions.

6. (Currently amended) The vector according to claim 3, wherein said nucleic acid sequence is present in said vector in a sense orientation.

7. (Withdrawn). A vector according to claim 3, characterized in that said sequence is present in said vector in an anti-sense orientation.

8. (Previously presented) Plasmid pDGATcDNA having accession number ATCC PTA-989.

9. (Previously presented) Plasmid pDGATgene having accession number ATCC PTA-988.

10. (Currently amended) A plant having a genome, wherein the genome ~~contains~~ comprises an introduced nucleotide sequence ~~corresponding to~~ encoding a polypeptide having diacylglycerol acyltransferase activity, wherein ~~the~~ a sequence of the polypeptide comprises ~~is~~ SEQ ID NO: 2 ~~1, an introduced functional part of SEQ ID NO: 1, or an introduced sequence that is substantially homologous to SEQ ID NO: 1~~.

11. (Currently amended) A plant seed having a genome, wherein said genome ~~contains~~ comprises an introduced nucleotide sequence ~~corresponding to~~ encoding a polypeptide having diacylglycerol acyltransferase activity, wherein ~~the~~ a sequence of the polypeptide comprises ~~is~~ SEQ ID NO: 2 ~~1, an introduced functional part of SEQ ID NO: 1, or an introduced sequence that is substantially homologous to SEQ ID NO: 1~~.

12. (Currently amended) A genetically transformed plant, wherein ~~said~~ a genome of the plant has been transformed by ~~a~~ the vector according to claim 3 or claim 4.

13. (Currently amended) A genetically transformed plant seed, wherein ~~said~~ a genome of the seed has been transformed by ~~a~~ the vector according to claim 3 or claim 4.

14. (Currently amended) The plant seed of Claim 11, wherein the plant seed exhibits an altered ~~oil~~ seed oil content compared to an average of a statistically-significant number of seeds of ~~untransformed~~ plants of the same genotype without the introduced nucleotide sequence grown in identical conditions ~~at the same time~~.

15. (Currently amended) The plant seed of Claim 11, wherein the plant seed exhibits an altered diacylglycerol content in its seed oil compared to an average of a statistically-significant number of seeds of ~~untransformed~~ plants of the same genotype without the introduced nucleotide sequence grown in identical conditions ~~at the same time~~.

16. (Currently amended) The plant seed of Claim 11, wherein the plant seed exhibits a seed oil with an altered fatty acyl composition compared to an average of a statistically-significant number of seeds of a ~~untransformed~~ plant of the same genotype without the introduced nucleotide sequence grown in identical conditions ~~at the same time~~.

17. (Currently amended) The plant of Claim 10, wherein ~~the~~ a plant seed of the plant exhibits an enhanced biomass compared to an average of a statistically-significant number of ~~genomically-unmodified~~ plants of the same genotype without the introduced nucleotide sequence grown in identical conditions ~~at the same time~~.

18. (Currently amended) The plant seed of Claim 11, wherein the plant seed exhibits an enhanced biomass compared to an average of a statistically-significant number of seeds of ~~genomically-unmodified~~ plants of the same genotype without the introduced nucleotide sequence grown under identical conditions ~~at the same time~~.

19. (Currently amended) A method of producing transgenic plants comprising:

introducing a nucleotide sequence into a genome of a plant;

wherein said nucleotide sequence introduced into said genome ~~corresponds to~~ encodes a polypeptide having diacylglycerol acyltransferase activity, wherein ~~the~~ a sequence ~~is~~ of the polypeptide comprises SEQ ID NO: 2 ~~1 or SEQ ID NO: 3, a functional part of SEQ ID NO: 1 or SEQ ID NO: 3, or a sequence that is substantially homologous to SEQ ID NO: 1, SEQ ID NO: 3, a part of SEQ ID NO: 1 or SEQ ID NO: 3~~.

20. (Previously presented) The method according to claim 19, wherein said plant is a member of the Brassicaceae.

21. (Currently amended) The method according to claim 19, wherein said plant is selected from the group consisting of Arabidopsis thaliana, ~~borage (~~*Borago* spp.~~)~~, Canola, ~~castor (~~*Ricinus* spp. ~~*communis*)~~, ~~cocoa bean (~~*Theobroma* spp. ~~*cacao*)~~, ~~corn (~~*Zea* spp. ~~*mays*)~~, ~~cotton (~~*Gossypium* spp~~)~~, *Crambe* spp., *Cuphea* spp., ~~flax (~~*Linum* spp.~~)~~, *Lesquerella*, ~~and~~ *Limnanthes* spp., Linola, ~~nasturtium (~~*Tropaeolum* spp.~~)~~, *Oenothera* spp., ~~olive (~~*Olea* spp.~~)~~, ~~palm (~~*Elaeis* spp.~~)~~, ~~peanut (~~*Arachis* spp.~~)~~, rapeseed, ~~safflower (~~*Carthamus* spp.~~)~~, ~~soybean (~~*Glycine*, ~~and~~ *Soja* spp.~~)~~, ~~sunflower (~~*Helianthus* spp.~~)~~, ~~tobacco (~~*Nicotiana* spp.~~)~~, *Vernonia* spp., ~~wheat (~~*Triticum* spp.~~)~~, ~~barley (~~*Hordeum* spp.~~)~~, ~~rice (~~*Oryza* spp.~~)~~, ~~oat (~~*Avena* spp.~~)~~, ~~sorghum (~~*Sorghum* spp.~~)~~, ~~rye (~~*Secale* spp.~~)~~ and other members of the plant family *Gramineae* not listed.

22. (Withdrawn). A plant DNA sequence or part thereof, characterized in that the sequence is substantially homologous to at least a part of SEQ ID NO: 1 or SEQ ID NO: 3, and in that said sequence has been isolated, characterized or designed using a sequence information from SEQ ID NO: 1 or SEQ ID NO: 3, or SEQ ID NO: 1 containing an 81 bp insertion such that the deduced amino acid sequence of the encoded protein contains the repeated sequence SHAGLFNLCVVVLIAVNSRLIIENLMK according to SEQ ID NO: 25, where the spacing and identity of the underlined amino acid are identical or are replaced by conserved substitutions.

23. (Currently amended) A method of changing the oil content, acyl composition or diacylglycerol/triacylglycerol ~~proportions~~ ratio of the seed oil of plant seeds ~~by~~, said method comprising:

introducing a ~~sense or anti-sense~~ nucleic acid construct comprising a nucleic acid sequence encoding a polypeptide having diacylglycerol acyltransferase activity into a plant transformation vector~~,~~;

~~using the vector to transform the~~ transforming a genome of a plant or plant seed~~,~~ with said plant transformation vector;

expressing the nucleic acid sequence;

~~and then~~ growing the plant or plant seed; and

extracting the oil from the plant seed~~,~~;

~~characterized in that~~ wherein said ~~nucleic sequence is~~ polypeptide comprises SEQ ID NO: 2 ~~1 or SEQ ID NO: 3, or a part of SEQ ID NO: 1 or SEQ ID NO: 3, or a sequence that is substantially homologous to SEQ ID NO: 1 or SEQ ID NO: 3~~.

24. (Currently amended) The isolated nucleic acid molecule of claim ~~1~~ 2, wherein the nucleic acid sequence is SEQ ID NO: 1.

25. (Currently amended) The isolated nucleic acid molecule of claim 2, wherein the nucleic acid sequence is SEQ ID NO: 3.

26. (Currently amended) The vector of claim ~~3~~ 4, wherein the nucleic acid sequence is SEQ ID NO: 1.

27. (Previously presented) The vector of claim 4, wherein the nucleic acid sequence is SEQ ID NO: 3.

28. (Currently amended) The plant of claim 10, wherein the introduced nucleotide sequence is SEQ ID NO: 1.

29. (Currently amended) The plant seed of claim 11, wherein the introduced nucleotide sequence is SEQ ID NO: 1.

30. (Previously presented) The method according to claim 19, wherein the nucleotide sequence is SEQ ID NO: 1.

31. (Previously presented) The method according to claim 23, wherein the nucleic acid sequence is SEQ ID NO: 1.

32. (New) The isolated nucleic acid molecule of claim 1, wherein the sequence of the isolated nucleic acid molecule is SEQ ID NO: 1 or a fragment thereof encoding the polypeptide having the diacylglycerol acyltransferase activity.

33. (New) The vector of claim 3, wherein the nucleic acid sequence is SEQ ID NO: 1 of a fragment thereof encoding the polypeptide having the diacylglycerol acyltransferase activity.